

### REMARKS

This submission is in response to the Official Action dated February 11, 2003. Claims 63-87, 89, 93, 97, 99, 101, 103, 105, 107, 109, and 110 have been amended. Claims 1-18, 91, 92, 95, 96, and 112 have been cancelled without prejudice or disclaimer. Claims 113 to 125 have been added. Claims 63-90, 93-94, 97-111 and 113-125 are pending. Claim 111 has been allowed. Reconsideration of the above-identified application, in view of the amended claims and the following remarks, is respectfully requested.

Claims 63, 64, and 107 have been amended to recite the sequence of SEQ ID NO:10 wherein the amino acid at position 537 is N (i.e., asparagine). This recitation is a representation of the amino acid sequence of wild-type galactose oxidase from *D. dendroides*, and is supported by the specification at, e.g., page 47, Table 4; and by Figure 17A, showing the sequence of SEQ ID NO:10 and indicating that the mutant has only the amino acid substitution N537D in the wild-type amino acid sequence.

Claims 65-82 have been amended to conform with the amended claim language of claim 64.

Claims 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105, and 109 have been amended to recite wild-type *D. dendroides* galactose oxidase of ATCC46032. This refers to the wild-type galactose oxidase from the ATCC-deposited microorganism *Dactylium dendroides* strain which produces galactose

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oxidase, and is another representation of the amino acid sequence of wild-type galactose oxidase from *D. dendroides*, supported by the specification at, *e.g.*, page 4, lines 5-12; page 26, lines 11-13; and page 34, lines 24-28.

Claim 64 has also been amended to recite that the variant has at least one of the mutations V494A and G195E, and at least one of the amino acid mutations corresponding to S10P, M70V, C515S, N535D, N537D and N413D. This amendment is supported by the specification at, *e.g.*, page 47, Table 4.

All claims reciting 60% sequence identity have also been amended to recite that the variant has 90% sequence identity to a reference sequence and new claims 113 to 125 recite about 99% sequence identity to a reference sequence. This is supported by the specification at, *e.g.*, page 20, line 22 to page 21, line 7.

No new matter has been added by way of this amendment. Each of the Examiner's rejections is addressed below.

#### Rejection Under 35 U.S.C. §112, 2<sup>nd</sup> Paragraph

Claims 63-110 stand rejected as allegedly indefinite. The Examiner contends that it appears that these claims refer to the amino acid position of a polypeptide, but that without the recitation of a SEQ ID NO, the recitation is unclear.

As amended, the claims recite either one of two representations of wild-type galactose oxidase from *D. dendroides*, by name and deposit number or by

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sequence, as described above. This is supported by the specification. For example, the present disclosure includes no less than 12 figures (Figs. 17-28), each one describing the sequence of specific mutants of wild-type *D. dendroides* galactose oxidase along with the amino acid substitution, e.g., N537D (Fig. 17A), where "N" indicates the wild-type amino acid and "D" indicates the substitute amino acid, as is well known in the art. The specification also provides the deposited organism from which wild-type *D. dendroides* can be retrieved. There can therefore be no doubt that Applicant was in possession of the wild-type sequence; that the disclosure includes the sequence in question, as claimed; and that the boundaries of the claimed invention are thereby clearly defined.

As set forth by the MPEP 2173.01:

A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose so long as the terms are not used in ways that are contrary to accepted meanings in the art. Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the court in *In re Swinehart*, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.

See also MPEP 2173.02. Accordingly, it is respectfully submitted that this rejection has been overcome. Reconsideration and withdrawal of the rejection is therefore respectfully requested.

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Rejection Under 35 U.S.C. 102(e)

The Examiner has rejected claims 63-64, 66, 71 and 112 as allegedly anticipated by U.S. Patent No. 6,498,026 to Delagrave et al. Specifically, the Examiner refers to the description of mutated galactose oxidase residues 494 and 195 in the '026 patent.

As amended, the claims are directed to galactose oxidase variants which comprise at least one mutation not taught or suggested by the '026 patent. As shown by the activity comparisons between various wild-type and variant galactose oxidases in Table 4 at page 47, these additional amino acid mutations further improve oxidase activity in wild-type enzyme or in V494A or G195E variants.

An anticipatory reference must teach every feature of the claimed invention, either explicitly or impliedly. MPEP 2131. The '026 patent does not teach or suggest the unique additional amino acid substitutions or unique specific combinations of mutations discovered and claimed by Applicant. It is respectfully submitted that this rejection thereby has been overcome and should be withdrawn.

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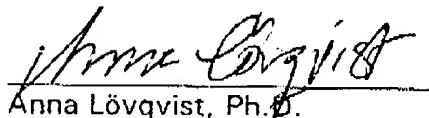
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Therefore, in view of the above amendments and remarks, it is earnestly believed that the application is in condition for allowance, and such action is earnestly sought.

If there are any other issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted,



Anna Löqvist, Ph.D.  
Limited Recognition Under 37 C.F.R.  
§10.9(b) (see attached)  
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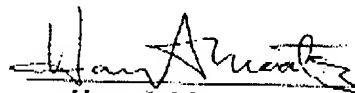
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**Expires: February 4, 2004**



Harry I. Moatz

Director of Enrollment and Discipline